222 SPEED STUDIES

ARS 28-702 requires that all posted speed zones be based on an engineering and traffic investigation, herein referred to as a traffic engineering study.

Speed zoning revisions may be necessary because of highway improvements, roadside development, traffic operational changes, route and milepost changes, or requests. It is important that speed regulations be updated promptly to reflect any revisions to the existing speed zoning.

On new highway alignments or major highway reconstruction projects, the speed study should be conducted as soon as possible after the work has been completed.

Several factors may affect the 85th percentile speed. Analysis of these factors in conjunction with the 85th percentile speed provides an accurate representation of traffic operating conditions along any given section of highway and provides a scientific basis for the selection of speed limits:

A. Length of section
B. Alignment
C. Roadway width and shoulders
D. Surface condition
E. Sight distance
F. Traffic volume
G. Accident experience
H. Maximum comfortable speed on curves
I. Side friction (roadside development)
J. Parking practices and pedestrian activity
K. Signal progression.

To achieve a comfortable operating speed, a specific location may justify a speed that is lower than the lawful posted speed for a given section of highway, such as an isolated horizontal curve on an otherwise straight section. Such locations may be treated by the application of special warning signs such as Curve and Turn signs with advisory speed signs.

To promote efficiency and still provide an adequate representative sample for speed zone studies, the sample size should be based on the following criteria:

a. If hoses or other electrical and/or mechanical devices are selected to collect speed data, procure a sample of vehicles during a 24-hour period for each travel direction.

b. If radar is selected to collect speed data, and

i. If the average daily traffic (ADT) is under 2000, procure a minimum sample size of 50 vehicles per direction within a maximum time limit of two hours.

ii. If the ADT is 2000 and over, procure a minimum sample size of 100 vehicles per direction within a maximum time limit of two hours.

Every effort should be made to disguise or conceal the fact that speeds are being recorded, otherwise distorted data may be collected, the analysis of which may lead to unrealistically low speed limits. A speed survey should be made at times of the day when it is possible to measure free-flowing traffic. Free-flowing traffic is defined as a condition when drivers have relative freedom to choose a speed without interference from other traffic. Usually, these conditions do not occur during peak traffic hours. An exception would be low-volume facilities. The first vehicle in a platoon should be monitored unless all are free-flowing.

New speed zones and adjustments to existing speed zones shall be established only when a traffic engineering study shows roadway conditions to be satisfactory for that speed. Traffic engineering studies recommending new speed zones and adjustments to existing speed zones shall be stamped by a registered professional engineer and submitted to the State Traffic Engineer prior to initiating a speed regulation change.

The Speed Limit sign changes recommended in a traffic engineering study shall not be posted in the field until the new speed regulation has been adopted.